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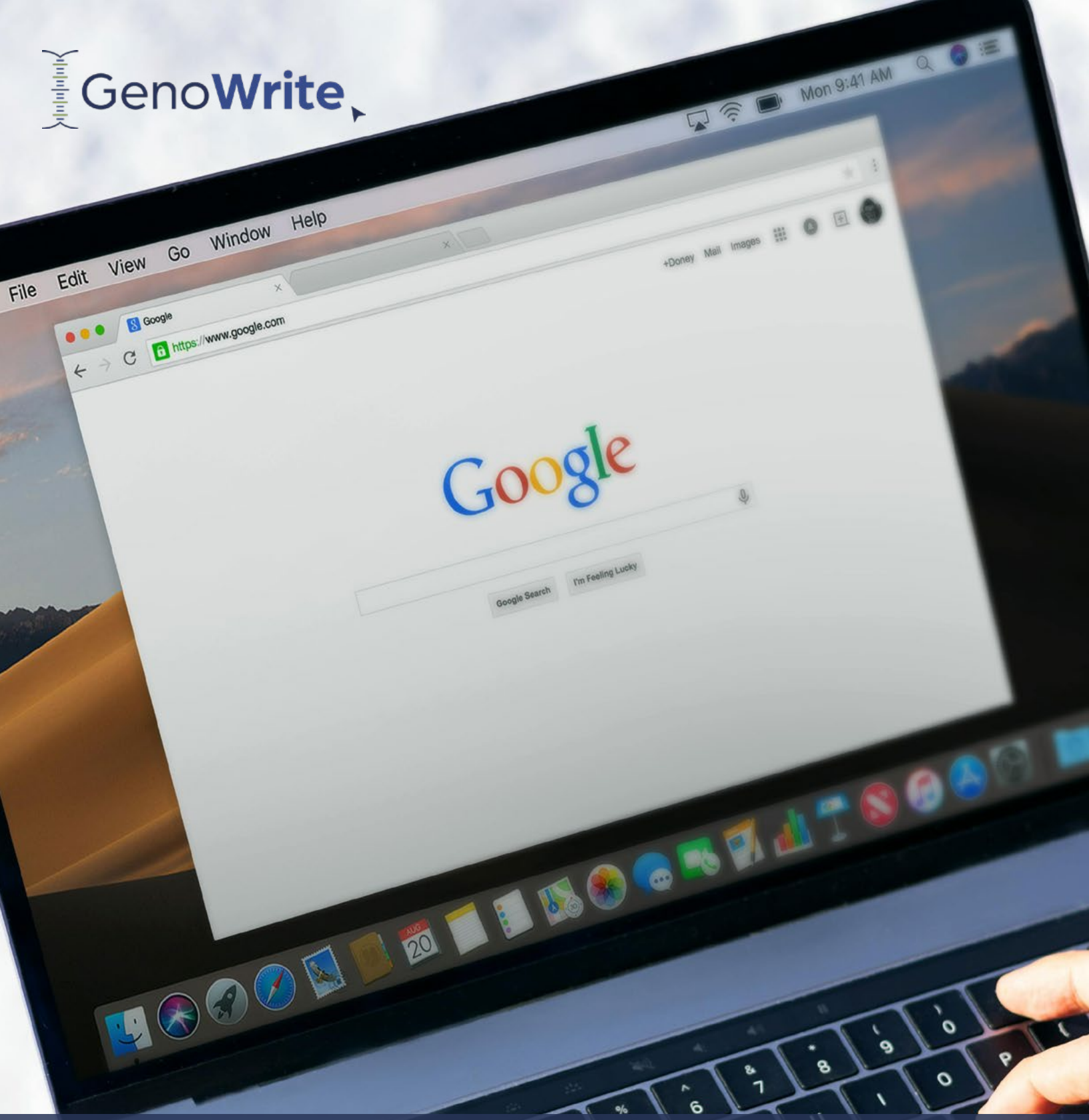

How To Find Keywords For Life Sciences SEO For Free

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Introduction

Think back to the last time you bought something online. How did you decide which product was right for you? You may have used the first search results to inform your purchasing decisions. That's exactly the main goal of every website: increasing visibility to achieve a user's goal, commonly by ranking high in search results.

That's also why every scientist should have a website. Personal websites remain essential tools for us to share reliable information and connect with any target audience worldwide. They are the core of your scientific brand, where expertise, values, and perspective come together.

To best increase visibility, Good SEO (Search engine optimization) strategies are crucial. They spotlight the value of your scientific content to your readers and, in turn, search engines. Good SEO practices also help you improve your website's online presence and strengthen your authority in the life sciences industry.

Keyword research is among the first things you do to execute any SEO strategy. It helps you discover terms people most often search for online for a topic and incorporate them into your content. When combined with strong storytelling that speaks to your audience, keyword research allows you to communicate complex concepts in a way that reinforces your expertise and differentiates your brand from others in your field. As a result, users do not just find your content. They begin to recognize your brand as an authoritative voice in your field.

To show you how to produce content that appears high on search engines such as Google, we will explore how search engines work, how to identify effective keywords, and what keyword research tools you can use to emerge on the first page of any search engine.

How do search engines rank websites?

Before we can consider how to appear on the first page of search results to maximize your brand visibility, we need to start with a simple question: how do search engines work?

Search engines process your website through three main steps: **crawling, indexing and ranking.**

1

Crawling

Search engines bots (crawlers) discover your website and examine its **organization**. It is a reading map of your site, figuring out its structure and where your links go.

2

Indexing

The crawlers then collect information about your website **content** and **categorize** it. During indexing, crawlers answer questions like these: is it a homepage or a blog? How many images do you have on a webpage?

3

Ranking

Search engines then **rank** your content relative to others through proprietary algorithms. Various factors tied with authority, relevance, and user engagement, are considered when determining whether your webpage should appear in search results.

Let's think about search engine process as a library **(Figure 1)**. Search engines are like librarians that must organize the books present in the library. Crawling is like a librarian taking inventory of all the books. In the indexing, the librarian categorizes them and determines their topics. Finally, in the ranking the librarian decides which books to display prominently so readers can find them easily. When someone stops by the library to ask for a specific topic, the librarian will recommend books that best relate to the person's query.

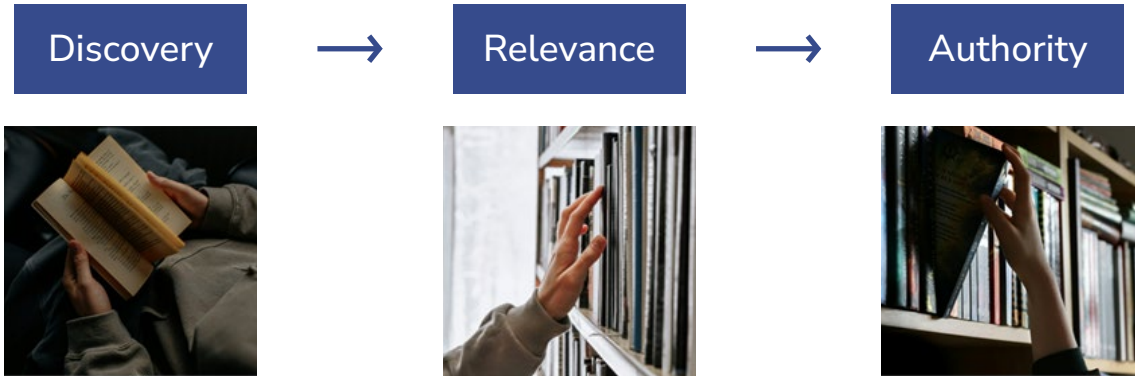

Figure 1: The three-step process for search engines to rank web pages, featuring libraries

Why keyword research and how to do it?

In much the same way, crawlers use keyword research to find websites that best address whatever the person is looking for. That's why keyword research is so important. It identifies the terms **(keywords)**, that your target audience searches for most often so that you can produce content tailored to their search needs. By knowing what kinds of queries your target audience makes, you increase the chances that people will find your website and discover your brand.

For example, if you run a service company specialized in organoids generation, your target audience may include scientists or research centers seeking to overcome specific challenges, such as the formation of necrotic cores or the organoid disaggregation, obtaining enough high-quality organoids for their research. Understanding their needs, and the exact terminology they will search for, will bridge your technological offerings with the needs of your customer.

Which types of keywords exist?

The keywords that you will want to rank in will depend on the fields of your target audience, the problems that your technologies and services can address, and the types of content you're planning to create. A coffee seller will use keywords like *moka pot, coffee machine, espresso*, etc. On the other hand, a biologist studying brain organoids will search for terms such as *neurodevelopment organoids, best protocol for organoids generation, bioreactors brands*, etc.

Regardless of the context, keywords are commonly evaluated using metrics related to search behavior, such as **search volume** and **competition**. **Search volume** is a metric that indicates how many times a specific keyword or a phrase is searched online within a given timeframe. Competition measures how difficult it is to rank highly for that keyword. A highly competitive **keyword** means that many other companies are targeting these keywords to rank, whether through paid advertisements or SEO-based efforts.

Keywords can also be classified by the following characteristics:

1) Length

- **Short-tail keywords**: single words with high search volume and high competition (e.g. *coffee, organoids*)
- **Mid-tail keywords**: phrases of 2–3 words, more specific and with less competition (e.g. *coffee recipe, human organoids model*)
- **Long-tail keywords**: highly specific multi-word phrases with lower volume and lower competition (e.g. *how to obtain good black coffee, how to grow cortex organoids*)

2) User Intent

- **Informational**: used by people searching for information
  (e.g. *how much caffeine there is in a coffee, how organoids are generated*)
- **Navigational:** used by people trying to reach a specific website or place
  (e.g. *coffee bar near me, organoids services near me*)
- **Transactional**: used by people ready to buy
  (e.g. *best coffee maker of the year, best organoid culture kit*)

3) Strategic Purpose

- **Brand Keywords**: containing a brand name
  (e.g. *Starbucks coffee, Thermo Fisher organoid media*)
- **Unbranded Keywords:** generic terms
  (e.g. *black coffee, organoid culture protocol*)

Keyword research: step by step

Every internet user is doing keyword research. Knowing the kinds of keywords that they're looking up will help you meet them in the middle with your website. To do this, you'll need to know how to perform good keyword research.

Before you begin with your keyword research, you have to **understand your audience** and its **goals**. This is what Eli Schwartz calls "Product-led Marketing". By identifying the specific challenges your product addresses, such as batch-to-batch variability in organoid cultures, necrotic core formation, or constraints in therapeutic efficacy, you can begin to understand how to target the customers who would most benefit from what you're offering.

Moreover, customers can find themselves at different stages of their buying journey. One who's just starting to understand what organoids are will resonate with completely different content from someone who's deciding which type of organoids to use for their research.

Understanding your customer is the starting point of keyword research. It ensures that the keywords you target attract the right audience, not just more traffic. You can get Eli Schwartz's book by clicking on this link. We'll also have an article about different sales models and how they relate to product-led marketing in the life sciences, so follow our newsletter so you can be notified when it comes out!

With a clear understanding of your customer in place, the keyword research process can begin. But how to perform it? Keyword research can be divided into a series of **steps**:

1. **Create a list of general topics**: Once you know who you want to connect with most, you can then identify the **main themes** that your website will cover and organize them into **topic clusters**. A scientist developing a therapeutic that treats symptoms specific to amyotrophic lateral sclerosis might consider producing case studies of patients who benefitted by addressing specific symptoms or publishing detailed reports on mechanisms of action, reinforcing their scientific brand in the field.

2. **Identify terms related to these topics**: Using a keyword search tool, start identifying **keywords** that your target audience would most likely search for. For a website on 3D models, this initial list might include terms like *what is 3D bioprinting, which are the differences between inkjet-based and extrusion-based bioprinters, how do organoids mimic physiological environment* and *what are bioreactors*. Moreover, the website would dispel the misconception that organoids are less effective than traditional animal models, so it would include terms such as *which are the weakness of animal models, how to reduce animals for scientific studies* and *alternatives to animal models in research*.

3. **Analyze keyword performance**: create a table where you note each keyword's **search volume** and **competition** to understand which keywords are worth prioritizing. Then, study your **competitors** by exploring their articles. Use Google Search to identify which queries bring up their content, then look for gaps or opportunities where your own content can stand out. Do not copy their keywords but discover new opportunities and refine your keyword list.

   With a good keyword list, you can finally produce **high-quality, relevant** content for your audience. Keywords can bring visibility to your site only if they match with high-quality content.

4. **Monitor and adjust your strategy**: Keyword research and SEO are ongoing processes. If your strategy does not work as expected, don't worry! Review your performance, analyze which keywords are working or not, and refine your strategy accordingly. It is a long process, and it is always possible to adjust it.

Keyword Research Tools

After learning how to do keyword research, it's useful to know which tools can help you. We will review some of the top keyword research tools and their applications in life sciences.

Ahrefs Keywords Explorer

Professional paid SEO tool for finding **new keywords** and analyzing their **potential traffic** and search volume. It returns **detailed metrics**, like return rate, click-to-search ratio, and keyword variations. Useful for competitive research in scientific niches but not specialized for scientific terminology.

Type	**Paid** ($119-419/month)
Designed for	• SEO agencies • Marketing agencies • Communication agencies • Scientific startups
Pros	• New keywords • Keyword difficulty analysis • Backlink audits • Competitor research
Cons	• Expensive • Complex for beginners

Utility for Scientific/Life Sciences Use:

- Useful for competitive research in scientific niches
- Not specialized for scientific queries

AnswerThePublic

Useful for content creators and science communicators. It accesses search engines autocomplete data, generating every useful question (in the form of **how, what, why**) and phrase (**long-tail keywords**) people are searching for a defined topic. Particularly valuable in life sciences for understanding audience questions.

Type	**Free and Paid** ($79-399/month)
Designed for	• Content creators • Science Communicators
Pros	• Question-based keywords • Question-driven queries • Long-tail phrases
Cons	• Limited data volume • Limited free version • No exact search volumes

Utility for Scientific/Life Sciences Use:

- Excellent for Life Science

Google Keyword Planner

Free tool primarily used by advertisers to create a list of keywords for search campaigns. It shows **keywords ideas, search volume** ranges, **competition** and **geographic/ language data**. It helps estimate **costs** for paid campaigns. Not specific to scientific lexicon, so less used in life sciences.

Type: Free

Designed for:
- Advertising campaigns
- Small companies

Pros:
- Volume and competition estimation
- Geographic/language data

Cons:
- Limited SEO metrics
- Focused on advertising

Utility for Scientific/Life Sciences Use:
- Scientific lexicon not fully recognized
- No scientific filtering

Google Trends

Free search tool that shows **relative search interest** over time and **geographical distribution** for every keyword. Excellent for spotting **trending scientific topics** and **seasonal patterns**.

Type: Free

Designed for:
- Marketers
- Researchers
- Journalists

Pros:
- Search interest over time
- Rising queries
- Seasonal trends
- Geographical distribution

Cons:
- No new keywords

Utility for Scientific/Life Sciences Use:
- Trending scientific topics

Moz Keyword Explorer

Moz's toll for SEOs and small-medium websites that provides **new keywords** with **search volume**, **ranking difficulty**, and a **priority score** to balance traffic potential and feasibility. Unique for its focus on keyword prioritization.

Type
Free and Paid
$49-299/month

Designed for
- Beginners to intermediate SEOs
- Small-medium websites

Pros
- Keywords suggestion
- Volume
- Difficulty
- Priority score

Cons
- Limited long-tail keywords
- Limited niche keywords

Utility for Scientific/Life Sciences Use:
- Few scientific/academic keywords

PubMed Trending Articles / Semantic Scholar Trending Papers

Specialized platforms for scientists and researchers to help identify **trending topics** and **trending articles** in scientific literature, analyzing citations and traffic. Highly tailored to scientific data and research trends.

Type
Free

Designed for
- Scientists
- Researchers
- Academic content creators

Pros
- Trending topics
- Trending articles

Cons
- Only published literature
- Few outside academia

Utility for Scientific/Life Sciences Use:
- Specialized for scientific/academic keyword trends

SEMrush Keyword Tool

Comprehensive SEO tool that provides, beyond keywords ideas, metrics including search volume, difficulty, competition, authority and traffic. Moreover, it can identify technical problems of your website.

Type	**Free and Paid** $165-455/month	**Pros**	• Keywords idea • Competitive analysis
Designed for	• SEOs • Marketers • Agencies	**Cons**	• Full version expensive • Generalist tool

Utility for Scientific/Life Sciences Use:

- Low metric accurace for scientific keywords
- Life science underrepresented

Conclusion

In this article we have understood the importance of improving your website visibility and we discovered the importance of keyword research. Keywords help you understand your customers' needs and attract more people to your site. Moreover, we saw some useful tools that can help you with your strategy.

Take home messages:

- Keyword research is one of the most important SEO strategies to improve your website visibility
- To perform good keyword research, understand your audience and learn from your competitors keywords
- Use keyword research tools to support your work

To find out more about SEO strategies and keyword research, keep visiting the **GenoWrite website** for upcoming content and subscribe to the newsletter to stay informed!

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